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0.0 Introduction

Thank you for buying this manual. Over the years, this manual has helped a lot of Vectorworks users to get started and trained quickly. Here are some things that will help you:

1. Work right through the manual. Some of the exercises may seem too easy. Don't worry about that; do them anyway. I have had some people say that they can do all these exercises, but when they are pushed to complete the exercise they realize that they have learned something. The information in this manual will not find its way into your head if you don't complete the exercises.
2. Reading the manual is good, reading the manual and watching the movies is better. However, reading the manual, watching the movies, and completing the exercises has the best results. Watch the movies, try the exercise and then play the movie again.
3. Allow yourself two weeks to work through this manual. Some of my clients allow their new workers two full weeks to work through this manual. They are expected to complete the manual in one week and then repeat the exercises. In the second week they should be able to repeat the exercises a couple of times. I have been told that at the end of this time the workers are up to speed and are useful Vectorworks technicians.
4. This manual covers a lot of ground, and you might feel that there is too much content to absorb. It's all there for a reason: this is what you need to know to use Vectorworks well.

The aim of this manual is to take away a lot of the mystery of the computer and to give to you an understanding of how you can use Vectorworks.

Comments and discussions are shown like this.

- Instructions for you to complete are shown like this.

Tips: Useful tips are shown like this.

Measurements for you to use are shown in both metric and imperial. Metric measurements are shown first, imperial measurements are shown second in brackets. If you are using metric, do not type in the imperial measurements; if you are using imperial, do not type in the metric measurements. Simply type in the imperial measurements that appear inside the brackets.

The manual is not designed to make you an expert in Vectorworks. Rather, it's designed to build a foundation of essential knowledge so that you will understand the way Vectorworks is intended to work.

Simple concepts will be covered, and the notes are there as additional help only. When the mystery has been removed from Vectorworks, you should find that the manuals make a lot more sense to you.

At the beginning of the manual you will find screen pictures for both Windows and Macintosh machines. Later on, you will find either Windows or Macintosh screen pictures. While the screen pictures are slightly different from one operating system to the other, you will find that the pictures display the same information.

This manual starts with an introduction to the Vectorworks interface—the way that Vectorworks appears on the screen. This will show you all the parts you need to know. It is important to learn these parts, so you can find your way around.

Having found out what the parts of Vectorworks are, we will learn how to use these parts to create objects. In Vectorworks, we do not draw lines, we make objects. Objects are much better than drawing with lines because with objects you can attach information and report size, areas, volumes, and other information.

We will be start with exercises to reinforce the importance of working with objects, and you will learn the quickest, most effective ways of working with Vectorworks. The first exercises will teach you the basic Vectorworks concepts: how to create objects, how to place the objects where you want them, how to work with the objects, and how to create drawings with dimensions and annotations.

The manual then moves onto learning about the way Vectorworks tools and commands work in detail. Vectorworks has many tools and commands, so we have to learn about them in detail, which will enable you to move away from simple drawings and models in to complex ones.

0.1 How to Use this Manual

This manual comes as a hard copy with a CD-ROM.

There are two exercise folders on the CD. One is called “Imperial Exercises,” and the other is called “Metric Exercises.” Copy the exercise folder that you want to use to your computer. Place the exercise folder in a location to make it easy to find later, such as in “My Documents.”

Save any training files that you work on to your exercise folder.

When you want to play a movie that is shown in the printed manual, insert the Essential Tutorial Manual CD into your computer’s CD player and double click on the file on the CD called **Essential Tutorial Manual.pdf**. This is your electronic copy of the manual, and it contains links to all the movies. To play a movie from the electronic copy of the manual, move your cursor over the movie icon (the cursor will change shape) and click once. When the movie is finished, it will automatically close. If you are using a Macintosh, make sure the Essential Tutorial Manual. PDF opens with Adobe Acrobat Reader, not Preview. Preview will not display the movie icons.

You will find that for the first half of the manual there are instructional movies that cover most items. As the manual progresses, you will find yourself repeating some of the tools and techniques. The expectation is that you will have learned how to use that tool or technique and therefore will not need a movie to repeat the tool or technique. If you need to refresh that technique, go back to the part of the manual where we used it and repeat the movie.

0.2 What's in This Manual

This manual starts with an introduction to Vectorworks and how to use it. This section explains the Vectorworks interface (the way Vectorworks appears on the screen) and covers the basic concepts, such as creating simple objects, controlling graphics, and creating a drawing from start to finish (the workflow).

After leaving the basics, there is a section on using many of the tools and commands in detail. There are a lot of tools and commands, so this section focuses on the most important ones to get you started. It is important to complete this section because you need to learn how to use the tools' various options.

The third section is about organizing information in Vectorworks. There are concepts you need to learn in order to create the models, drawings, and reports you want. This section builds on the concepts introduced in the workflow exercise in the first section.

After learning about the tools and commands in detail and how to organize information, the next section brings these together with an an exercise design to practice your new skills in a single drawing exercise.

There is a section on drawing buildings. It might be tempting to skip this section if you are not using Vectorworks Architect, but you will learn several new skills from this section, so it is recommended for everyone.

The final section is about worksheets (like a spreadsheet). I think worksheets are the most under used yet powerful area of Vectorworks. Worksheets allow you to count objects, do calculations on these objects (like costing), and create reports on objects in the drawing.

0.3 New Ways of Drawing

When you are drawing in Vectorworks, draw the objects to the correct real-world sizes regardless of the scale of the layer that you are working on.

It is much easier to maximize the potential of Vectorworks by using objects (for example, doors, windows, rectangles, etc.) to draw with because they can be easily edited. You could say that Vectorworks is designed to draw with objects.

When you want to draw shapes, you may be tempted to use lines and arcs to draw the shape. Always try to draw with solid shapes, rectangles, and polygons. I have created a series of exercises that show you how to make complex shapes out of simple shapes by adding the shapes together or by clipping a portion of a simple shape away to make a complex shape.

It's very important that you use these new drawing methods to draw your buildings, landscapes, or engineering models.

1.0 Introduction to Vectorworks

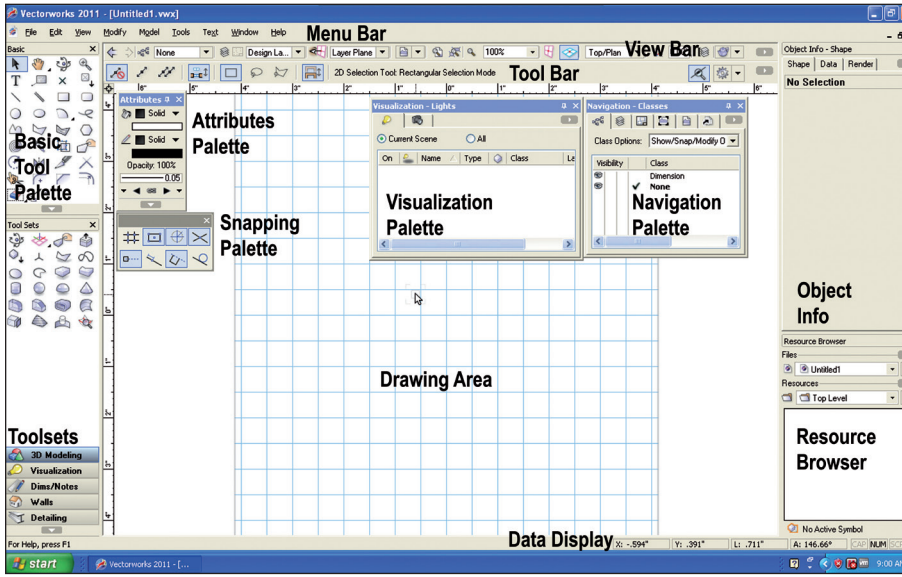
Vectorworks is a powerful program that can be utilized by a range of professions — from engineering and landscape to set and lighting design and architecture. Vectorworks uses a combination of tools and concepts to create sophisticated drawings and models. It includes a database/reporting component and a built-in scripting language that allows you to make your own custom tools.

Vectorworks can be used to create simple drawings for joinery, a whole set of contract documents for a large commercial building, landscaping design, or a virtual model of a building that you can walk around or fly through.

1.1 Vectorworks Interface

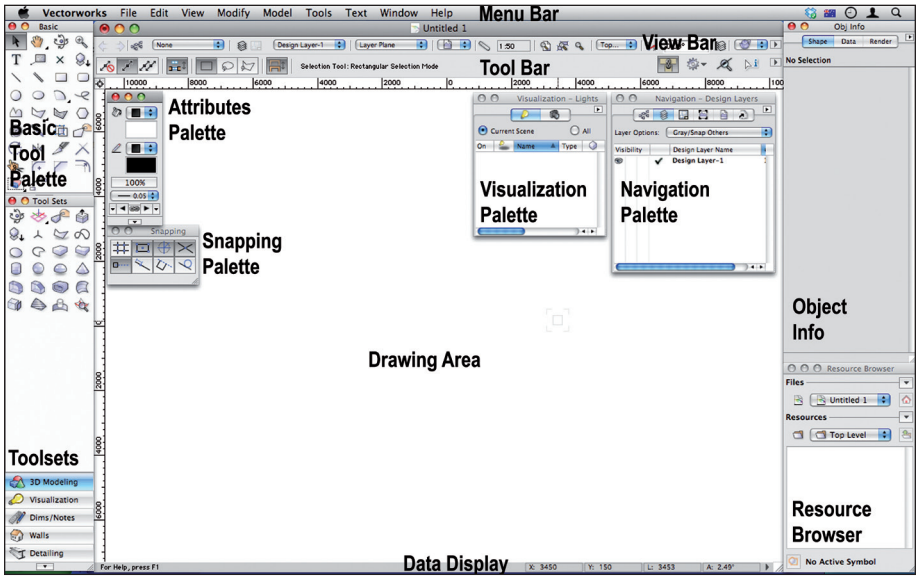
When you start Vectorworks it looks like this on a Windows machine:

movie
movie001.mov



And like this on a Macintosh:

movie
movie002.mov

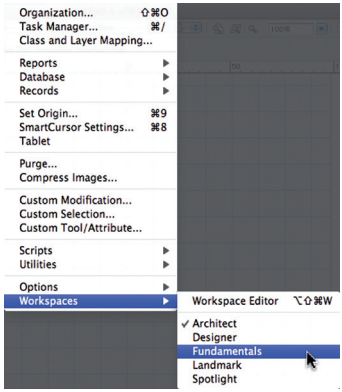


Workspaces

movie
movie003.mov

The arrangement of the Menu bar and Tool palettes is called a workspace. There are workspaces for architects, landscapers, and engineers. You can choose from a range of workspaces by going to the Tools menu, clicking on workspaces, and then clicking on the workspace that you want.

- Go to the Menu bar.
- Choose **Tools > Workspaces > Fundamentals.**



Since it is so easy to change workspaces and create your own customized workspaces, you should get into the habit of changing the workspace to one that you like.

This manual uses the Fundamentals workspace. If you do not change to the Fundamentals workspace, you may find that the instructions in this manual do not work correctly.

Menu Bar

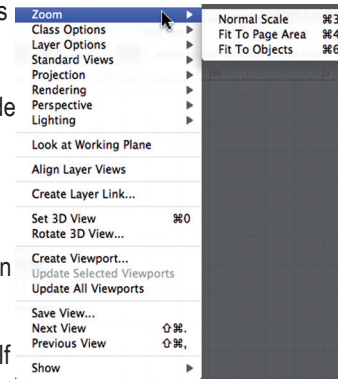
movie
movie004.mov

The Menu bar is at the top of the screen.

These are the menus for the Fundamental workspace.

These menu commands instruct the computer to carry out the required action such as opening a document, rendering an object, etc.

When you click on a name in the Menu bar, the commands in that menu pop down. You will see that some are black and some are gray. The “grayed out” commands are unavailable or are inappropriate for the current tool or mode that you are presently working in. All of the available commands are shown in black. As you move the pointer down the list of commands, they will be highlighted. To choose the highlighted command just release the mouse button on a Macintosh, or click on the desired command on a Windows machine.



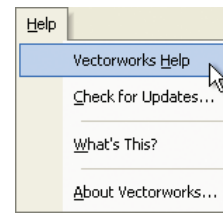
This is standard Macintosh and Windows interface so far. If you are currently using a computer all of this will be familiar.

Help Menu

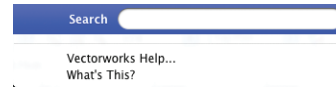
movie
movie005.mov

The last option on the Menu bar is the Help menu. This command will open your web browser and display the Vectorworks Online Help. You do not need Internet access for this, as all the files are stored on your computer.

- Go to the Menu bar.
- Choose **Help > Contents** (Windows)

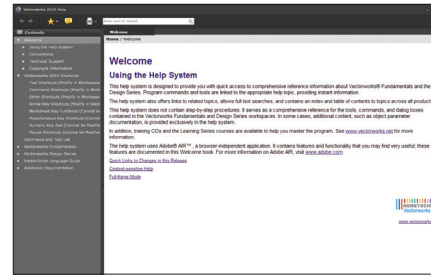


- **Help > Vectorworks Help...** (Macintosh)



You will see a list of bookmarks.

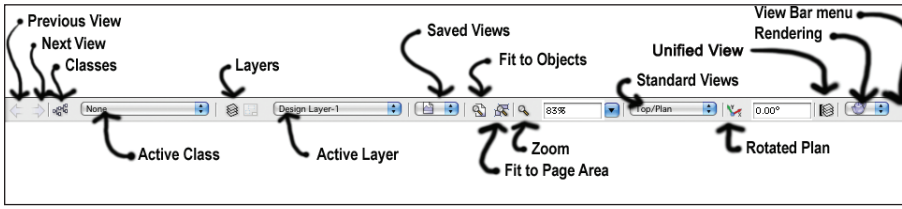
- Click on the topic, click on the Index, or click on the search button to give you the ability to search for a specific word or phrase.



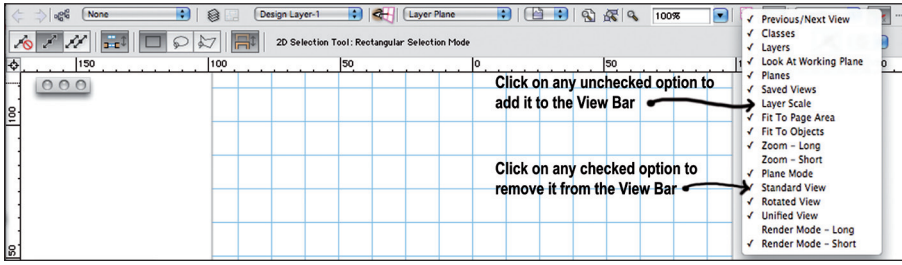
View bar

The View bar contains many of the view functions into one area. It allows you to save and retrieve saved views and choose settings for what you see on the drawing, the rendering, zoom and so on.

movie
movie006.mov



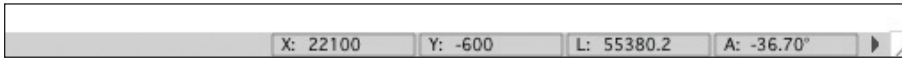
You can edit the View bar by Right clicking (Ctrl+click on a one-button mouse), or you can click on the View bar menu. This allows you to choose the parts that you want to see. This bar is really useful, so watch the movie for a detailed explanation.



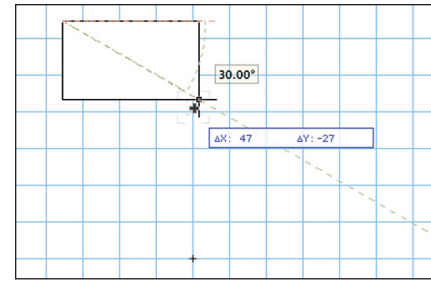
Data Display Bar

movie
movie007.mov

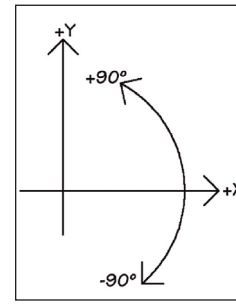
The data display bar at the bottom of the screen shows where the cursor is at the moment.



There is also a Data Display that can pop up when you create something. This shows you the size of the object you are drawing, and it allows you to enter dimensions directly into the fields using the keyboard. This allows you to accurately control the size of the object you are drawing.



The Data Display bar and the Floating Display bar uses X and Y coordinates. X are horizontal dimensions, and Y are vertical dimensions.



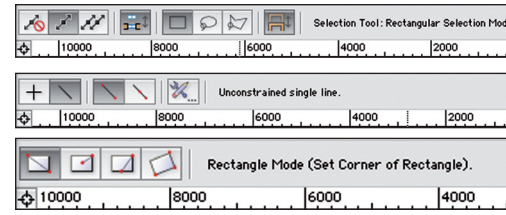
The angular dimensions do not follow surveyors bearings; 0° is across to the right, 90° is up the screen, and -90° is down the screen.

If you type in a dimension on the floating Data bar, it will be in your current units. If you want to type in a dimension using different units just type the dimension followed by the unit mark. For example, to enter 3 feet and 6 inches, type in 3'6" and then hit the Return or Enter key. You can also use simple arithmetic, e.g. plus (+), minus (-), divide (/) and multiply (*).

movie
movie008.mov

Tool bar

The Tool bar tells you what tool mode you have selected and sometimes has instructions about what to do next. The options or modes are displayed by icons in the Tool bar along with a brief description of each mode as it is selected.



When you select a tool, you have to check the Tool bar to see what mode the tool is in. It may not be appropriate to what you want to do.

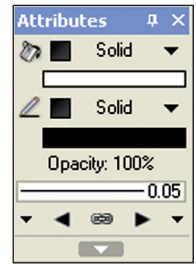
The Tool bar has options for quick access to Vectorworks preferences, and it has options for the data display bar.

1.2 Palettes

movie009.mov

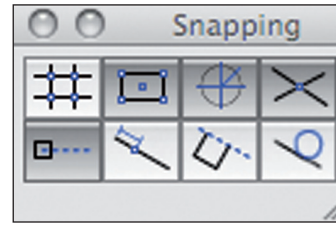
Several palettes control different aspects of your design:

The **Attributes** palette controls the graphic attributes (line style, thickness, color, etc.) of the object that you are creating or modifying.



The **Snapping** palette contains snaps to control the way that a tool is being used.

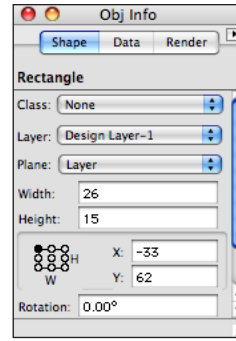
The Snapping palette controls the way that you snap and create an object (to be perpendicular, parallel, etc.).



If you do not turn on some of the snaps, you will not be able to snap onto any object. The most useful snaps to leave on all the time are the ones shown darker.

The snaps are turned on and off by clicking on them with the mouse. On the Macintosh, the snaps are darker when they are switched on. On the Windows machine, the snaps are lighter when they are switched on.

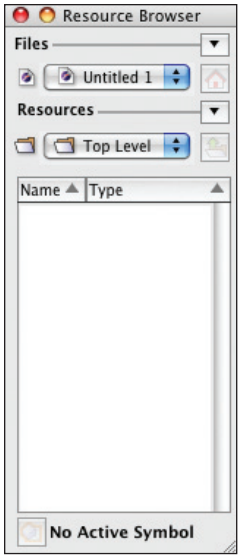
The **Object Info** palette displays information about the object created or selected. You can use the Object Info palette to change the size or location of an object, change the layer or class the object is assigned to, and add or edit database information.



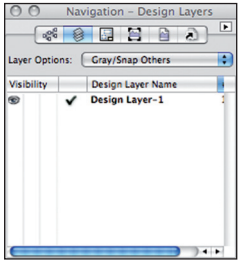
If you have Renderworks, this palette will have three tabs; otherwise it will have only two. The three tabs are for Shape (to control the size and location of objects), Data (to control information attached to objects), and Render (to control textures assigned to objects if you have Renderworks).

The **Resource Browser** allows you to place, import, and organize resources (gradients, hatches, images, symbols, textures, and worksheets).

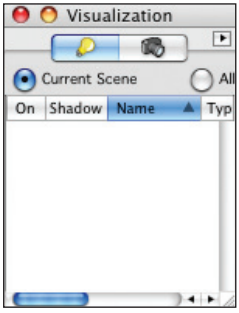
The Resource Browser can be used to look into other files to get these resources.



The **Navigation** palette gives you quick access to various aspects of your drawing (layers, classes, saved view, and viewports). This palette is only available if you have Vectorworks Designer or one of the design series. It is not available if you have Fundamentals.



The **Visualization** palette is used to manage camera and lights.

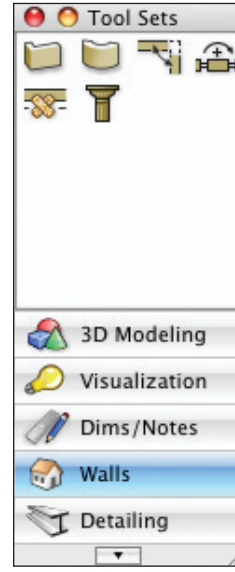


Tool Palettes

The Basic Tool palette contains all the standard 2D tools for creating and editing.

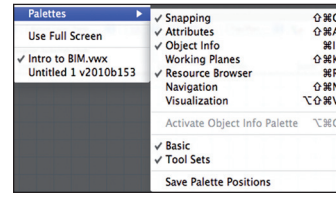
Tools in Vectorworks stay active until a different tool is chosen. So if you select the Rectangle tool, it will stay active until you select a different tool. Clicking on the screen will start creating another rectangle even if you only want to select the Zoom tool.
The strategy is to select the tool first and then click on the screen. When you are finished with the tool, choose the next tool that you want.

The Tool sets palette contains tools that are used for creating and modifying more advanced objects. The tools are grouped together in tool sets. The tool sets can be dragged off to make a separate tool palette, sometimes called tear-off palettes.



All of these palettes are known as floating palettes because they can be moved anywhere on the screen by clicking onto their title bar and dragging the palette to the desired location. With Windows, many of these palettes can be docked to either side of the screen or at the top of the screen.

- To find palettes, go to the Menu bar.
- Choose **Window > Palettes >** and choose the palette that you want.
- If the palette has a tick next to its name, then the palette is open. If you choose the palette again, the palette will close. To open the palette, choose it again.

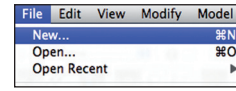


1.3 Filing

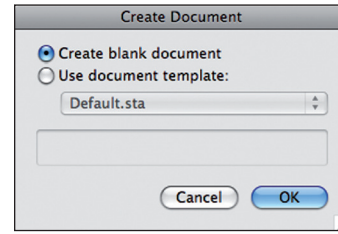
movie
movie010.mov

New File

- To create a new Vectorworks document, from theMenu bar choose **File > New...**



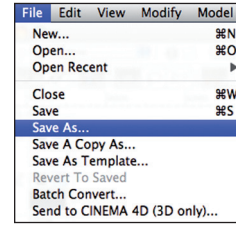
This allows you to create a new file from a blank Vectorworks template. Using a template means that the new drawing will be exactly the same as the template in every way except for its name.



Template drawings can be created with all your favorite settings and saved as a template so that you don't have to set them up in every new drawing that you create. They can even have drawn objects in them, such as title blocks and symbols.

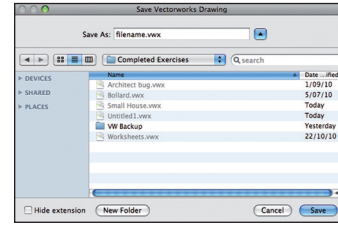
Saving Files

Once you begin a drawing in Vectorworks or open an existing file you will need to continually save your drawing. Until you save a file, anything you have drawn will not be stored. When you use the "Save" command, you are storing the file onto your hard drive.



movie
movie011.mov

- Go to the Menu bar.
- Choose **File > Save or Save As...**



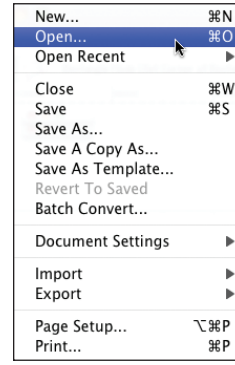
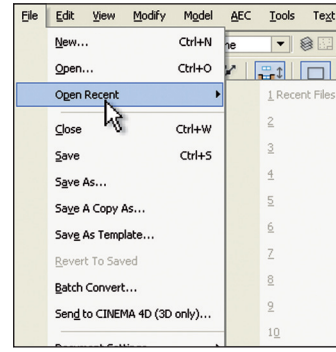
The first time you save a file, you get the opportunity to decide where you want to store it.

- Make sure that you store the drawing into the correct folder on your hard drive or in the correct folder on the server—if you are using Vectorworks in a network.

Opening Existing Files

When you create files with Vectorworks, you should remember to store them in a separate place, on your hard drive, from where Vectorworks is stored.

- To open an existing drawing file, from the Menu bar choose **File > Open...**
- Locate the file that you want and click on the Open button.



Recently opened drawings are shown on the File menu. If the file you want is listed there, just select it from the list. Otherwise, use the Open command from the File menu. If you have opened the file recently, then you can use the recent file command from the Menu bar.